

LISTING OF CLAIMS

1.-3. (Cancelled)

4.-5. (Withdrawn)

6. (New) An ethanol production process including the steps of mixing a starch-containing feedstock, water, and a hydrolyzing agent to form a liquefied mash, adding a fermentation agent to the liquefied mash, fermenting the liquefied mash under fermentation conditions to form a beer containing at least 10% ethanol by volume, distilling the beer to form an ethanol-rich stream and a whole stillage steam, wherein the improvement comprises:

- (a) adding to the liquefied mash a secondary treatment agent whereby the fermentation agent and the secondary treatment agent are present during the fermenting, wherein:
- i. the secondary treatment agent is selected from a group consisting of bacteria, enzymes, fungi, or combinations thereof, that can convert under the fermentation conditions at least a portion of the liquefied mash to a pre-selected non-ethanol by-product or precursors thereof;
 - ii. the secondary treatment agent has the characteristics of remaining active in the presence of the ethanol contained in the beer being formed during the fermenting of the liquefied mash,
 - iii. the secondary treatment agent under the fermentation conditions converts at least a portion of the liquefied mash during the fermenting of the liquefied mash into the pre-selected non-ethanol by-product or precursors thereof, and

- iv. the activity of the secondary treatment agent does not prevent the fermentation of the liquefied mash to produce the beer having at least 10% ethanol by volume; and
 - (b) distilling the beer containing the pre-selected non-ethanol by-product to produce the ethanol-rich stream and the whole stillage stream containing the pre-selected non-ethanol by-product; and
 - (c) separating the pre-selected non-ethanol by-product from the whole stillage stream.
7. (New) A process according to claim 1 wherein the fermentation conditions comprise fermenting at 20°C – 40°C and at a pH between 4.0 and 6.5.
8. (New) A process according to claim 7 wherein the starch-containing feedstock comprises milled corn, the pre-selected non-ethanol by-product comprises cyclodextrin, and the secondary treatment agent is cyclodextrin glucosyl transferase.